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March 28, 2008

David Odell
154 Greybridge Road
Pelzer, SC 29669

VIA MAIL

Charles L. A. Terreni
Chief Clerk/Administrator
South Carolina Public Service commission
101 Executive Center Drive, Suite 100
Columbia, SC 29219

Re: Petition of the Office of Regulatory Staff to Establish Dockets to Consider
Implementing the Requirements of Section 1251 (Net Metering and Additional
Standards) of the Energy Policy Act of 2005
Docket Number: 2005-385-E

Mr, Terreni:

Enclosed please find an original of the Direct Testimony of David Odell in the above
referenced docket. I am filing this testimony on behalf of myself. I am not acting in a
representative capacity for any party other than myself. This testimony has been prepared
for the hearing relevant to the matter cited above which is scheduled to begin on Tuesday,
April 22, 2008, at 10:30 a.m.

By copy of this letter, I am also serving all other parties of record. Please let me know if
you have any questions.

Yours truly,



David Odell

Enclosure
cc: Parties of Record

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Testimony of David Odell
On behalf of
Himself as an Intervener
Docket No. 2005-385-E

Q: PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND OCCUPATION.

A: My name is David Odell. My business is Odell Options, Inc. located at 154 Greybridge Rd, Pelzer, SC 29669. I am a Solar Energy Consultant currently contracted with Sunstore Solar of Greer, SC.

Q: PLEASE STATE YOUR EDUCATION AND RELEVANT EXPERIENCE TO THIS ISSUE.

A: I received a Bachelor of Science degree in Computer Science from the University of Maryland in 1985. I began working in the Solar Industry in 2005. Currently, I consult with homeowners and businesses about the potential of solar for their respective energy needs. I design and build solar thermal and solar electric solutions. My business requires me to stay abreast of solar trends, policies, and technologies across the state, nation, and world. I have followed this docket closely since its inception.

Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A: The purpose of my testimony is to give expert analysis of the proposed tariffs, vis-à-vis their potential to promote renewable energy installations, and to share a different perspective on renewable energies, specifically solar, to which the commission may not normally be exposed.

Q: IS IT YOUR OPINION THAT THE PROPOSED TARIFFS ARE INADEQUATE TO PROMOTE RENEWABLES?

A: Yes. On their own, they are, at best, mediocre.

Q: CAN YOU DESCRIBE THE PROPOSED TARIFFS RELATIVE TO THEIR ABILITY TO PROMOTE RENEWABLE ENERGY GENERATION?

A: The original tariffs offered by the utilities required customers to switch to Time-of-Use. As I stated in my oral testimony in May, 2007 this would do very little to promote renewables. Southern California failed miserably in their attempt to promote renewables while requiring TOU. North Carolina was the first state in the nation to require a homeowner to switch to TOU and still after over 2 years has just one net metered customer. I would say this is not promoting renewable energy. TOU is a great tool for customers, with or without solar, who want to lower their utility bill but it is very complicated and not easy to maintain. Only easily maintained and uncomplicated systems/rates will promote renewables.

1 The more recently proposed flat-rate net metering tariffs are a bit easier to understand
2 than TOU but are still lacking in two critical aspects.

3
4 First of all it is important to understand that every additional fixed monthly charge, such
5 as additional facilities charges or standby charges, eats into the generating systems cost
6 effectiveness in perpetuity. In round numbers, every additional \$5 in fixed monthly charges
7 consumes the total retail output of a .5 kW solar electric system. In other words, .5kw makes
8 about 65 kWh each month. At \$.08/kWh that amounts to \$5 each month. With each .5 kW
9 costing about \$5,000 to install, every kWh generated is precious. Having to hand over that 65
10 kWh every month just to pay the extra monthly charges is a bit severe. And that is using full
11 retail credits, which is not what is being proposed.

12
13 Additional Monthly Charges

14 Duke Energy

15 Supplemental Basic Facilities Charge: \$3.75

16 Standby Charge: \$.95 per kW

17 Progress Energy

18 Metering Facilities Charge: \$3.10

19 SCE&G

20 Seller Charge: \$13.00

21
22 Secondly, the proposed flat-rate tariffs credit the customer for excess generation at peak
23 and off-peak avoided cost rates. Anything less than crediting the retail rate adds complexity to
24 the analysis and eats into the investment of solar.

25
26 When I sit down with a potential client I use their power consumption history to model a
27 proposed solar electric system to meet their generation goals. Then they ask me how much they
28 will save each month. This is where it gets complicated. How much excess solar generation will
29 occur during peak hours and how much during off-peak hours? No one knows. Even by making
30 educated guesses on these figures we know for sure the savings will not match the potential of
31 true retail net metering (described later).

32
33 These proposed tariffs could also work against any potential peak-shaving benefits. If a
34 renewable energy generation site on this proposed flat-rate tariff could design their power
35 consumption to mimic solar generation, then there would be very little excess generation. A
36 residential customer might decide it would be advantageous to use all the power when it is
37 produced (off-setting at retail rates, in essence) rather than sending it up the grid (and credited at
38 avoided cost rates). So they may choose to wash their dishes or clothes, for example, in the day
39 (e.g. during peak summer hours) rather than conserving energy usage during peak hours.

40
41 Ideally most residential solar installations would prefer to generate excess during peak
42 hours and run their laundry or dishes at off-peak hours for the greater good. But if they are not
43 credited at retail rates for excess generation they may choose their pocket books over the greater
44 good.

1 **Q: SO WHAT NET METERING TARIFF WOULD YOU PROPOSE?**

2
3 A: If the commission is determined to promote renewables in South Carolina, then I would
4 respectfully recommend that the commission direct a flat rate net metering tariff with no
5 additional monthly charges and whereby the customer would receive credit at their current retail
6 rate. Nothing less than this true retail net metering should be the target. Having a TOU net
7 metering tariff as an option might also prove to be valuable for future case studies and customers
8 already on TOU.
9

10 **Q: WHO SHOULD PAY THE ADDITIONAL COSTS OF TRUE RETAIL NET**
11 **METERING ?**
12

13 A: An honest examination of cost implications will weigh both sides of the ledger - costs as
14 well as benefits. The cost impacts of net metering on the utility and other ratepayers are exactly
15 the same as for a customer that reduces load through conservation or energy efficiency measures.
16 These types of investments are universally considered as beneficial for all parties involved. I
17 recommend that this question be re-framed without its current implicit bias. The body of
18 ratepayers will not only pay the costs of net metering, but reap the benefits - which all my
19 research suggests outweighs those costs.
20

21 Further, the simple fact of the matter is that about 40 states have adopted true retail net metering,
22 and in no state is the utility allowed to recover alleged "costs" from a renewable energy
23 surcharge designed exclusively to deploy additional renewable generation.
24

25 **Q: YOU'RE RECOMMENDING A TRUE RETAIL NET METERING TARIFF**
26 **WITH NO ADDITIONAL MONTHLY CHARGES? WON'T THIS PUT UNDUE**
27 **BURDEN ON THE NON-NET-METERED RATE PAYERS?**
28

29 A: A common argument against net metering is that certain costs are shifted to non-net
30 metered ratepayers. In the most simplistic consideration of the issue, because net metered
31 customers reduce their consumption, they contribute less to the fixed costs of operating the grid.
32 These costs, it is sometimes argued, are transferred to non-net metered ratepayers, who
33 effectively subsidize net metered systems' use of the grid. A closer examination of the issue
34 reveals that the cost-shift argument does not justify negative treatment of net metering (i.e.
35 additional monthly charges and/or non-retail credit rates).
36

37 Let me detail several points to refute this cross-subsidization argument:
38

- 39 1. Net Metering impacts are equivalent to other forms of energy reduction. A net metered
40 solar system does reduce consumption—but the same is true of a solar energy customer
41 who installs batteries to store excess solar production for later usage, or a utility customer
42 who reduces load through conservation or installing energy efficiency technologies. In
43 neither of the latter two scenarios would utility customers be expected to make a special
44 payment to address their reduced contribution to fixed costs. As the impacts on the utility
45 and other ratepayers are the same, net metered solar system owners should not be treated
46 differently. In fact, the net metered customer is providing high value, peak kWh onto the

1 grid at the low voltage distribution level, thereby reducing pressure on the overall
2 transmission and distribution system to the benefit of all.

- 3
- 4 2. Actual grid usage by excess generation is minimal. Power supplied to the grid by the net
5 metered system is consumed by the nearest neighboring load. In some cases, this means
6 the power will barely enter the grid, traveling on the low side of a customer transformer
7 from one neighbor to another. This minimal grid usage does not justify a buy/sell dual
8 metering arrangement, wherein the utility would be charging the recipient customer for
9 the full cost of a transmission and distribution system only a miniscule fraction of which
10 had been used in the transaction.
- 11
- 12 3. The alternative, dual metering, incurs costs. Measures to avoid the loss of T&D revenue
13 incurs additional administrative costs—new costs that are roughly comparable to the
14 revenue loss avoided. Systems on a net metering arrangement can usually utilize
15 currently installed meters, and there would be no additional meter reading or billing costs
16 incurred. With dual billing, new meters that measure bi-directional flow must be
17 installed, and utility meter reading and billing practices must be changed to collect
18 information on electricity fed back into the grid, calculate its value, and cut checks to
19 system owners. These hardware and administrative costs can be avoided with true retail
20 net metering.
- 21
- 22 4. Every solar panel installed provides economic benefits for all utility customers by
23 reducing the overall cost of producing and delivering electricity. As photovoltaics
24 produce the most electricity during peak demand periods, the benefits of net metered
25 solar systems are magnified.
- 26
- 27 5. Studies in other states have established high values for distributed generation solar
28 systems. A study of California's system found the value of on-peak solar to be between
29 \$0.231-\$0.352/kWh¹. A study in the New York City area found that the avoided
30 generation capacity benefits alone of PV was worth 9.1 cents/kWh, and when avoided
31 transmission capacity and line losses were accounted for, the benefits rose to 16.6
32 cents/kWh². These values are significantly greater than retail power costs in those states
33 (meaning the solar energy system owner may be cross subsidizing other utility
34 customers).
- 35
- 36 6. Avoided Generation Fuel Cost—Each peak kilowatt generated by solar power systems
37 displaces other utility generation on peak when fuel costs are highest, thereby reducing
38 costs for all utility customers.^{3 4 5}

¹ Smeloff, Edward: *Quantifying the Benefits of Solar Power for California*. January 2005. www.votesolar.org

² Perez, P., T. Hoff, L. Burtis, S. Swanson, C. Herig: *Quantifying Residential PV Economics—Payback vs. Cash Flow, Determination of Fair Energy Value*. Proceedings of ASES 2003, funded in part by NREL.

³ Duke, Richard, Robert Williams and Adam Payne, 2004, "Accelerating Residential PV Expansion: Demand Analysis for Competitive Electricity Markets," *Energy Policy*.

http://www.nrel.gov/ncpv/thin_film/pdfs/energy_policy_pv_expansion_residential_demand_issues.pdf

⁴ Orans, R. et al: *Methodology and Forecast of Long Term Avoided Costs for the Evaluation of California Energy Efficiency Programs*, Energy and Environmental Economics, Inc. and Rocky Mountain Institute, report prepared for the California Public Utilities Commission, October 25, 2004. http://www.ethree.com/cpuc_avoidedcosts.html

1
2 7: Avoided Transmission and Distribution Losses—Since distributed solar power generation
3 is located at the point of use, line losses, typically 7-10%, are avoided. (Note that line
4 losses are significantly higher during peak demand periods when solar is at its maximum
5 production.)
6

7 In summary, net metering simply makes the relationship between the grid's shortcomings and a
8 solar system's attributes more rational and efficient.
9

10
11 **Q: WON'T PACE (PALMETTO CLEAN ENERGY) PROMOTE RENEWABLES?**
12 **CAN'T SOUTH CAROLINA RELY ON THAT PROGRAM FOR CREATING**
13 **INCENTIVES FOR RENEWABLE ENERGY INSTALLATIONS?**
14

15 A: It is my opinion that drafting a state policy that relies on voluntarily funded donations in
16 order to succeed is a flawed approach. PaCE has the potential to create some movement in South
17 Carolina. But it is unproven today, and it is obviously unproven in five or ten years from now.
18 Who knows if it is a long term effective and sustainable model?
19

20 If South Carolina was to really hang its hat on PaCE then these entire net metering hearings
21 could be dismissed. Generally speaking, I support PaCE. But I would encourage the
22 commission to completely ignore its existence when evaluating net metering tariffs.
23
24

25 **Q: DOES THIS CONCLUDE YOUR TESTIMONY?**
26

27 A: Yes it does. Thank you for the opportunity to present to the commission.

⁵ Wiser, Ryan, M. Bolinger, and M. St. Clair: *Easing the Natural Gas Crisis: Reducing Natural Gas Prices through Increased Deployment of Renewable Energy and Energy Efficiency*. LBNL, prepared for DOE. January 2005.
<http://eetd.lbl.gov/ea/ems/reports/56756.pdf>